Re-run

PCT

RAW SEQUENCE LISTING   DATE: 03/14/2002
PATENT APPLICATION: US/09/890,782   TIME: 14:40:34

Input Set : N:\Crf3\Refhold\I890782.raw
Output Set: N:\CRF3\03142002\I890782.raw

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  1 <110> APPLICANT: Rijksuniversiteit Leiden
  2 <120> TITLE OF INVENTION: method of modulating metabolite biosynthesis in
  3       recombinant cells
  4 <130> FILE REFERENCE: BO 43339
  5 <140> CURRENT APPLICATION NUMBER: US/09/890,782
C--> 6 <141> CURRENT FILING DATE: 2002-03-14
  7 <160> NUMBER OF SEQ ID NOS: 21
  8 <170> SOFTWARE: PatentIn Ver. 2.1
 10 <210> SEQ ID NO: 1
 11 <211> LENGTH: 1754
 12 <212> TYPE: DNA
 13 <213> ORGANISM: Catharanthus roseus
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 17       ttcgtttttg taaagtttga ttcttggcgg agattttcga caaaggagtg ggcaatttgt 180
 18       gcaatacttc tgagaaaatt gaaagagata caaggatggc tcttcttgat caggcatcca 240
 19       atttgagtcc catgcctttt gatttcacta gaaagaggaa gtcgaggagg agggatggta 300
 20       ctaagaacgt agcggagaca cttgcaaagt ggaaagagta taatgagaaa cttgatgctt 360
 21       tagatggagg gaaaccagct cggaaggttc ctgccaaagg atcaaaaaag ggatgtatga 420
 22       aaggtaaagg aggccctgag aattctcact gcaaatacag aggagttagg cagaggacat 480
 23       ggggtaaatg ggtggccgaa attcgggaac caaacagggg tagcaggctt tggttgggta 540
 24       cattcagaaa cgcgatagaa gctgcacttg cttatgatga agcagcgagg gcgatgtatg 600
 25       ggccttgtgc taggcttaat cttccgaact atagggcttc agaagaatct tcttccttgc 660
 26       caacaacatc aggatcagat acgactactg cttctggcat ctcagaggtc tctgtctatg 720
 27       aagacaaaaa gttcacacca gttgtttccg gattgaaaca agatgacaag ggtgaatcat 780
 28       tagagtcagc tgatagtaaa cctcaactcc tggtcgatgc tggcactccc atgagtgcag 840
 29       tgaaggaaga accaaaagaa tatcaggtta tggattccca gtctgaaggg caattcggag 900
 30       acgaggaacc gcctagcaag cttgtttgta aagaagtcga ctttgggcag gatcaagctg 960
 31       ttgttcctgc tgttaaaaat gctgaggaga tgggtggaga gatgggtgga gatatactga 1020
 32       aaggctgttc tttgtctgag atgtttgatg tggacgagtt gttgagcgtt ttagattcta 1080
 33       cacccctcca tgcctcagat tttcagcatg gcatgggaaa tggtaatgta aaggcagagg 1140
 34       ctgcttacaa ctatgctcct tcatgggact cggccttcca gttgcagaat caagatccta 1200
 35       agctaggaag tcagcagcac atggcgcaga cacccccaga aattaattcc gggcttgatt 1260
 36       ttttgcagcc aggaagacaa gaggactcct attttacttt gggtgatcta gactttcttg 1320
 37       atttgggtgc tgaattggga ttgtaaatcc gaagttgttg aagctaaaag cggcgactat 1380
 38       gaaactggaa ttttggaacg gcttattgtt cctggtgttt gtcttagttc tagtctgttt 1440
 39       atgtactaga acttgacata taggaggctt ttgaaagctg aacaaacgaa gtgtgaatta 1500
 40       ttttcttttt ttgtttttct gcagcgatgt atactaacat ctctactact aaaattacgt 1560
 41       ctcttcgtct tcactaacag tagggtggag ctgattctct tttaagtttt tcagaagggg 1620
 42       aattcagcta tgagtttaga ggcagggtag tgtagttcag tgagcagatt ctttctgtag 1680
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 44       tggaggttgt atct                                                  1754
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Input Set : N:\Crf3\Refhold\I890782.raw
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47 <211> LENGTH: 885
48 <212> TYPE: DNA
49 <213> ORGANISM: Catharanthus roseus
50 <400> SEQUENCE: 2
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52      tagtagatta tcaattcctc aacaacgatt ttgatttttc agaaatattt acagatttca 120
53      attacgctaa ttataattat aatacttcta cctcagataa tttctctggt tttcaattca 180
54      atgaaaattg cgaagaaatt atttcaccaa attatgcttc ggaagattta tcggatatta 240
55      ttttaacaga tatttttcaag gatcaggata attacgaaga cgaagtcgtt gcgggagaac 300
56      aagaagaaga attaattacg acacctacct ctcgcggcgg cggcggcggc ggatgtgagc 360
57      agagatcgaa tgaggaatgg attaggtacc gtggcgttag acggcggcca tgggggaaat 420
58      tcgctgcgga aatcagggat cccaagagaa aaggatcgag gatatggttg ggaacttacg 480
59      agacggcgga agatgcggca ttagctttcg atcaagcggc gtttcaactc cgtggttcta 540
60      gagctaggtt aaattttccc aatcttattg gttctgctaa tgctccggtt agagtaagtc 600
61      ctagacgccg atcttcatcg tgtcatcttc gtcctcaata atcctatcca cagttccatg 660
62      gggatagtaa attttttctt tgagtttttt agaagttata ttatctattg aaaaaataca 720
63      aaacattgca aatatttttt tagtacgtct ctatacttct ttttagtaat attcggatca 780
64      tgagcatggg gaaggtgata ttatccattg tcataaatta atagatacag tatcataaat 840
65      taatatgtac gaattacaag taaaatatag taagtgttaa tattg 885
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68 <211> LENGTH: 792
69 <212> TYPE: DNA
70 <213> ORGANISM: Catharanthus roseus
71 <400> SEQUENCE: 3
72      ttctaaaaaa gaagaaaaat gtccgaagaa atcatttccg tctcagatcg atttcttctt 60
73      tccttaatcg aagaacatct tctcagcgat aattctgatg attccagctc ggaattgact 120
74      tctacagagg aaaattggga agaaattttt gcagattttc taaattggtc gggatccgaa 180
75      atacagaaac gcggtagccc gagttccgaa agctgtcaat cgaattcaat ggcggaaagc 240
76      tgtcaggagg attctgttgt gggaaccccg ccagaagcgg cggccggagg aggttgttcg 300
77      aaggattgga accggtataa gggcgttaga cggcggccgt gggggaagtt cgcggcggag 360
78      ataagggatc cgaaaaagaa aggatccagg atttggttgg gtacatacga gacacctgag 420
79      gatgcagcat tggcttatga tgcagccgcg tttaatatgc gtggagctaa agctaggctt 480
80      aattttcctc atttgattgg ttcgaatatt tccggacccg ttagagtaaa cccgagaaaa 540
81      cgtttccctg cggagccttc tacgacgtcg tcgtcttctt cttcttcttc gtctgaaaat 600
82      agtggaggaa ggaagaagag acgatattaa ttaattatta aaagtggagg attaaaaaaa 660
83      ttctgtgaaa tgagagatta ttacgtggtt tttgttaagc ccgataatcc ctcattgtaa 720
84      aattattaac ttcatcgatg ttctttttta aatctttgga atgtacaaaa ttttatatcc 780
85      aaaaaagttc ac 792
87 <210> SEQ ID NO: 4
88 <211> LENGTH: 376
89 <212> TYPE: PRT
90 <213> ORGANISM: Catharanthus roseus
91 <400> SEQUENCE: 4
92      Met Ala Leu Leu Asp Gln Ala Ser Asn Leu Ser Pro Met Pro Phe Asp
93       1               5                  10                  15
94      Phe Thr Arg Lys Arg Lys Ser Arg Arg Arg Asp Gly Thr Lys Asn Val
95                      20                  25                  30
96      Ala Glu Thr Leu Ala Lys Trp Lys Glu Tyr Asn Glu Lys Leu Asp Ala
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97                35              40              45
98      Leu Asp Gly Gly Lys Pro Ala Arg Lys Val Pro Ala Lys Gly Ser Lys
99          50              55              60
100     Lys Gly Cys Met Lys Gly Lys Gly Gly Pro Glu Asn Ser His Cys Lys
101      65              70              75              80
102     Tyr Arg Gly Val Arg Gln Arg Thr Trp Gly Lys Trp Val Ala Glu Ile
103              85              90              95
104     Arg Glu Pro Asn Arg Gly Ser Arg Leu Trp Leu Gly Thr Phe Arg Asn
105              100             105             110
106     Ala Ile Glu Ala Ala Leu Ala Tyr Asp Glu Ala Ala Arg Ala Met Tyr
107          115             120             125
108     Gly Pro Cys Ala Arg Leu Asn Leu Pro Asn Tyr Arg Ala Ser Glu Glu
109          130             135             140
110     Ser Ser Ser Leu Pro Thr Thr Ser Gly Ser Asp Thr Thr Thr Ala Ser
111     145             150             155             160
112     Gly Ile Ser Glu Val Ser Val Tyr Glu Asp Lys Lys Phe Thr Pro Val
113              165             170             175
114     Val Ser Gly Leu Lys Gln Asp Asp Lys Gly Glu Ser Leu Glu Ser Ala
115              180             185             190
116     Asp Ser Lys Pro Gln Leu Leu Val Asp Ala Gly Thr Pro Met Ser Ala
117          195             200             205
118     Val Lys Glu Glu Pro Lys Glu Tyr Gln Val Met Asp Ser Gln Ser Glu
119          210             215             220
120     Gly Gln Phe Gly Asp Glu Glu Pro Pro Ser Lys Leu Val Cys Lys Glu
121     225             230             235             240
122     Val Asp Phe Gly Gln Asp Gln Ala Val Val Pro Ala Val Lys Asn Ala
123              245             250             255
124     Glu Glu Met Gly Gly Glu Met Gly Gly Asp Ile Leu Lys Gly Cys Ser
125              260             265             270
126     Leu Ser Glu Met Phe Asp Val Asp Glu Leu Leu Ser Val Leu Asp Ser
127          275             280             285
128     Thr Pro Leu His Ala Ser Asp Phe Gln His Gly Met Gly Asn Gly Asn
129          290             295             300
130     Val Lys Ala Glu Ala Ala Tyr Asn Tyr Ala Pro Ser Trp Asp Ser Ala
131     305             310             315             320
132     Phe Gln Leu Gln Asn Gln Asp Pro Lys Leu Gly Ser Gln Gln His Met
133              325             330             335
134     Ala Gln Thr Pro Pro Glu Ile Asn Ser Gly Leu Asp Phe Leu Gln Pro
135          340             345             350
136     Gly Arg Gln Glu Asp Ser Tyr Phe Thr Leu Gly Asp Leu Asp Phe Leu
137          355             360             365
138     Asp Leu Gly Ala Glu Leu Gly Leu
139          370             375
141 <210> SEQ ID NO: 5
142 <211> LENGTH: 210
143 <212> TYPE: PRT
144 <213> ORGANISM: Catharanthus roseus
145 <400> SEQUENCE: 5
146     Met Tyr Gln Ser Asn Ala His Asn Ser Asp His Leu Thr Phe Leu Pro
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147        1            5               10              15
148     Pro Leu Val Asp Tyr Gln Phe Leu Asn Asn Asp Phe Asp Phe Ser Glu
149                20                  25                  30
150     Ile Phe Thr Asp Phe Asn Tyr Ala Asn Tyr Asn Tyr Asn Thr Ser Thr
151                35                  40                  45
152     Ser Asp Asn Phe Ser Gly Phe Gln Phe Asn Glu Asn Cys Glu Glu Ile
153                50                  55                  60
154     Ile Ser Pro Asn Tyr Ala Ser Glu Asp Leu Ser Asp Ile Ile Leu Thr
155          65                  70                  75                  80
156     Asp Ile Phe Lys Asp Gln Asp Asn Tyr Glu Asp Glu Val Val Ala Gly
157                     85                  90                  95
158     Glu Gln Glu Glu Glu Leu Ile Thr Thr Pro Thr Ser Arg Gly Gly Gly
159                100                 105                 110
160     Gly Gly Gly Cys Glu Gln Arg Ser Asn Glu Glu Trp Ile Arg Tyr Arg
161                115                 120                 125
162     Gly Val Arg Arg Arg Pro Trp Gly Lys Phe Ala Ala Glu Ile Arg Asp
163                130                 135                 140
164     Pro Lys Arg Lys Gly Ser Arg Ile Trp Leu Gly Thr Tyr Glu Thr Ala
165          145                 150                 155                 160
166     Glu Asp Ala Ala Leu Ala Phe Asp Gln Ala Ala Phe Gln Leu Arg Gly
167                     165                 170                 175
168     Ser Arg Ala Arg Leu Asn Phe Pro Asn Leu Ile Gly Ser Ala Asn Ala
169                180                 185                 190
170     Pro Val Arg Val Ser Pro Arg Arg Arg Ser Ser Ser Cys His Leu Arg
171                195                 200                 205
172     Pro Gln
173          210
175  <210> SEQ ID NO: 6
176  <211> LENGTH: 203
177  <212> TYPE: PRT
178  <213> ORGANISM: Catharanthus roseus
179  <400> SEQUENCE: 6
180     Met Ser Glu Glu Ile Ile Ser Val Ser Asp Arg Phe Leu Leu Ser Leu
181          1            5               10              15
182     Ile Glu Glu His Leu Leu Ser Asp Asn Ser Asp Asp Ser Ser Ser Glu
183                20                  25                  30
184     Leu Thr Ser Thr Glu Glu Asn Trp Glu Glu Ile Phe Ala Asp Phe Leu
185                35                  40                  45
186     Asn Trp Ser Gly Ser Glu Ile Gln Lys Arg Gly Ser Pro Ser Ser Glu
187          50                  55                  60
188     Ser Cys Gln Ser Asn Ser Met Ala Glu Ser Cys Gln Glu Asp Ser Val
189          65                  70                  75                  80
190     Val Gly Thr Pro Pro Glu Ala Ala Ala Gly Gly Gly Cys Ser Lys Asp
191                     85                  90                  95
192     Trp Asn Arg Tyr Lys Gly Val Arg Arg Arg Pro Trp Gly Lys Phe Ala
193                100                 105                 110
194     Ala Glu Ile Arg Asp Pro Lys Lys Lys Gly Ser Arg Ile Trp Leu Gly
195                115                 120                 125
196     Thr Tyr Glu Thr Pro Glu Asp Ala Ala Leu Ala Tyr Asp Ala Ala Ala
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197           130                135                140
198     Phe Asn Met Arg Gly Ala Lys Ala Arg Leu Asn Phe Pro His Leu Ile
199     145                150                155                160
200     Gly Ser Asn Ile Ser Gly Pro Val Arg Val Asn Pro Arg Lys Arg Phe
201                     165                170                175
202     Pro Ala Glu Pro Ser Thr Thr Ser Ser Ser Ser Ser Ser Ser Ser Ser
203                 180                185                190
204     Glu Asn Ser Gly Gly Arg Lys Lys Arg Arg Tyr
205             195                200
207 <210> SEQ ID NO: 7
208 <211> LENGTH: 48
209 <212> TYPE: DNA
210 <213> ORGANISM: Catharanthus roseus
211 <400> SEQUENCE: 7
212     gtacatcact cttagaccgc cttctttgaa agtgatttcc cttggacc          48
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215 <211> LENGTH: 25
216 <212> TYPE: DNA
217 <213> ORGANISM: Artificial Sequence
218 <220> FEATURE:
219 <223> OTHER INFORMATION: Description of Artificial Sequence: primer
220 <400> SEQUENCE: 8
221     ccacgtggtt gtagtctctt agacc                                   25
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224 <211> LENGTH: 25
225 <212> TYPE: DNA
226 <213> ORGANISM: Artificial Sequence
227 <220> FEATURE:
228 <223> OTHER INFORMATION: Description of Artificial Sequence: primer
229 <400> SEQUENCE: 9
230     ggtacatcag agaatgaccg ccttc                                   25
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233 <211> LENGTH: 26
234 <212> TYPE: DNA
235 <213> ORGANISM: Artificial Sequence
236 <220> FEATURE:
237 <223> OTHER INFORMATION: Description of Artificial Sequence: primer
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242 <211> LENGTH: 21
243 <212> TYPE: DNA
244 <213> ORGANISM: Artificial Sequence
245 <220> FEATURE:
246 <223> OTHER INFORMATION: Description of Artificial Sequence: primer
247 <400> SEQUENCE: 11
248     agaccgcgaa gaatgaaagt g                                       21
250 <210> SEQ ID NO: 12
251 <211> LENGTH: 29
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VERIFICATION SUMMARY   DATE: 03/14/2002
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L:6 M:271 C: Current Filing Date differs, Replaced Current Filing Date